



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Arsenic

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Description:

- Arsenic is a naturally occurring element found primarily in rocks, soil, water, and plants in many areas of the United States, including Indiana.
- Natural events, such as infiltration to water, dissolution of minerals from clay, and erosion of rocks, can release arsenic into water.
- Arsenic compounds are usually white or colorless. When dissolved in water, arsenic has no smell, taste, or coloration, even at high concentrations.
- Arsenic can be released into the environment as a byproduct of industrial activities, such as wood preservation, mining, and smelting. Some products manufactured with arsenic include pesticides, paints, dyes, metals, drugs, soaps, and semi-conductors.
- The United States Environmental Protection Agency (U.S. EPA) sets the maximum contaminant level (MCL), a standard that limits the amount of arsenic in public water supplies to protect consumers against the negative health effects of long-term, chronic exposure.
 - The MCL is measured by parts per billion (ppb), a measurement expressing the number of parts of a contaminant contained within a billion parts of gas (air), liquid (water), or solid (soil). For example, one ppb is roughly equal to a ½ (one-half) teaspoon of contaminant in an Olympic-sized pool (660,000 gallons) of water.
 - In 2002, U.S. EPA lowered the MCL for arsenic to 0.010 milligrams per liter (mg/L) or ten (10) parts per billion (ppb), (about 5 teaspoons in an Olympic-sized pool). The standard required drinking water systems to become compliant by January 23, 2006.
 - In Indiana, background (naturally-occurring) levels of arsenic can be found at concentrations exceeding the MCL.

Potential Health Impacts:

- Because arsenic is a natural part of the environment, low levels of arsenic are present in soil, water, food, and air. If you are exposed to high levels of arsenic, the appearance of symptoms and their seriousness is dependant upon how much, how long and by what way you were exposed. Exposure pathways to arsenic include:
 - Drinking water from a groundwater source contaminated with arsenic;
 - Eating small amounts of arsenic present in or on food;
 - Breathing air with dust particulates containing arsenic; and
 - Breathing or incidentally ingesting arsenic in the workplace (if suitable worker safety measures are not in place for jobs involving arsenic production or use).
- Ingesting or breathing low levels of arsenic over a long period of time can cause a darkening of the skin, the appearance of small corns or warts on the palms, soles, and torso, nausea and vomiting, decreased production of red and white blood cells, abnormal heart rhythm, and damage to blood vessels.
- Ingesting very high levels of arsenic over a short period of time can be extremely hazardous to a person's health.
- Breathing high levels of arsenic can give you a sore throat or irritated lungs.
- According to the U.S. Department of Health and Human Services, there is some evidence that long-term exposure to arsenic in children may result in lower IQ scores.

- Arsenic is a known human carcinogen, and studies have shown that ingestion of arsenic can increase the risk of skin cancer and cancer in the liver, bladder and lungs.

IDEM's Role:

- The Indiana Department of Environmental Management (IDEM) is responsible for protecting human health and the environment while providing for safe industrial, agricultural, commercial, and governmental operations vital to a prosperous economy.
- IDEM's Office of Pollution Prevention and Technical Assistance and Office of Water Quality provide compliance and technical assistance to public water systems and individual homeowners to determine possible treatment and non-treatment alternatives to lowering arsenic levels in their drinking water.
- IDEM's Office of Water Quality monitors for contamination in drinking water sources and ensures the public has access to monitoring data for all regulated public water systems.
- IDEM's Office of Land Quality regulates the cleanup of arsenic contamination resulting from human activities through environmental remediation programs.

Citizen's Role:

- If you do not use a public water source and your water is supplied by a private well, have the arsenic concentration in your well tested. Conducting at least two tests annually is recommended as water quality may vary with season, rainfall, and other conditions:
 - An arsenic test can be acquired through an accredited lab and generally costs around \$25.00 per sample. When you contact a lab, they will send you the appropriate sample bottle and directions for proper sampling procedures.
 - The Indiana Department of Health (ISDH) provides guidance to homeowners and a list of labs certified to test for arsenic.
- If you use arsenic treated wood in home projects, you should wear dust masks, gloves and protective clothing to decrease exposure to sawdust.
- If you work in a job that involves arsenic production or use, such as copper or lead smelting, pesticide application or wood treating, be aware that you may carry arsenic home on your clothing.

More Information:

- For more information on arsenic in drinking water, visit U.S. EPA's Web site at: <http://www.epa.gov/safewater/arsenic/index.html>.
- For more information on arsenic levels in drinking water throughout Indiana, visit IDEM's searchable database at http://www.in.gov/apps/idem/sdwis_state/.
- For more information on testing your well for arsenic, contact your local health department. A directory of phone numbers and Web sites can be found at the ISDH Web site at <http://www.in.gov/isdh/23926.htm>.
- For a list of labs in Indiana certified to test for arsenic, please visit the ISDH Web site at <http://www.in.gov/isdh/22452.htm> or call (317) 921-5571.
- For more information on medical tests to determine if you have been exposed to arsenic, contact the ISDH Office of Epidemiology at (317) 351-7190, ext. 262.
- For more information on well treatment options, visit U.S. EPA's Web site at http://www.epa.gov/ogwdw/arsenic/pdfs/brochure_arsenic_treatment_vendor-guide.pdf.